Trend Study 9-16-00

Study site name: Mosby Mountain . Range type: Big Sagebrush-Grass .

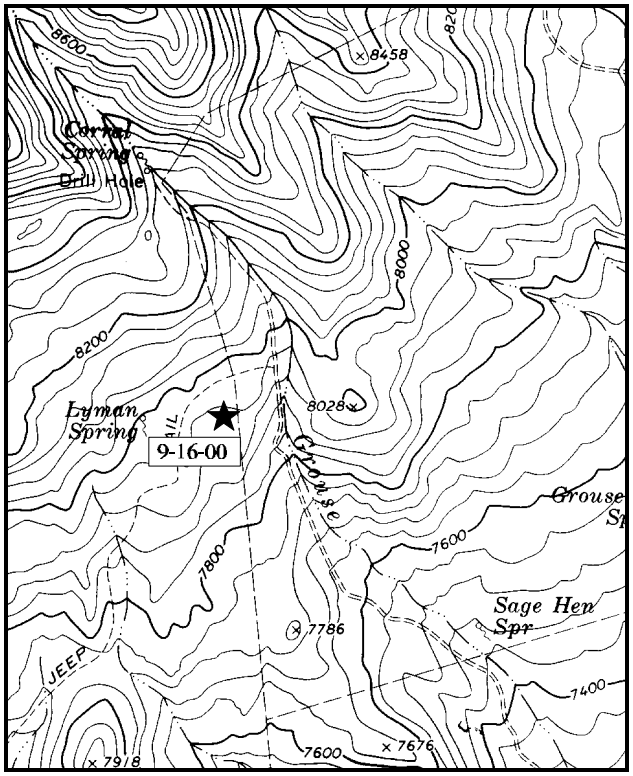
Compass bearing: frequency baseline 155°M .

First frame placement on frequency belts 5 feet. Frequency belt placement; line 1 (11 & 96ft), line 2 (30ft), line 3 (50ft), line 4 (72ft).

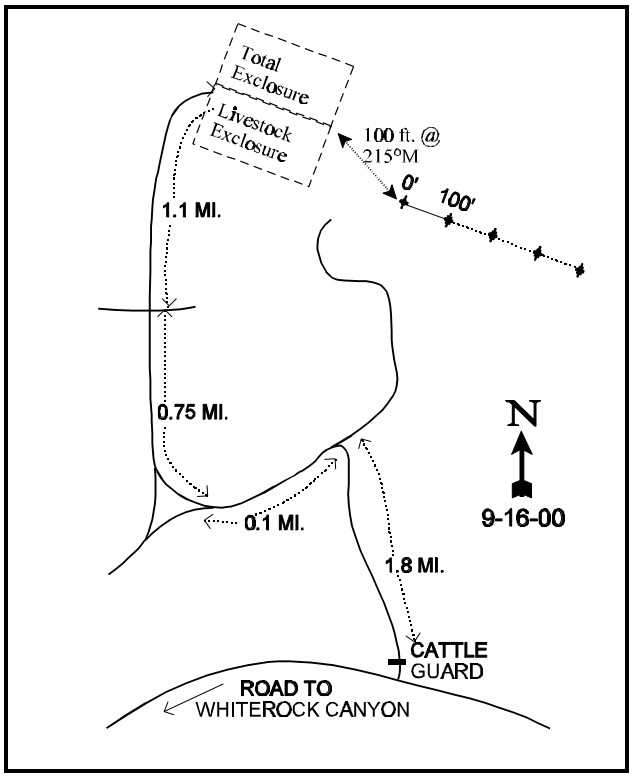
LOCATION DESCRIPTION

From the town of Whiterocks, go east for approximately 1.75 miles to a "T" in the road. Turn left (north) and go 3.5 miles to an intersection where 2 roads fork off to the right Turn right then take the left fork. Head north for approximately 4.0 miles to the Mosby Mountain Exclosure. The 0-foot baseline stake is located 12 paces from the southwest corner of the big game exclosure bearing 210°M.

This site may also be accessed from the east by traveling north through Tridell on 8000 E. Go though the reservation then west to Mosby Mountain.



Map Name: Lake Mountain



Diagrammatic Sketch

Township 3S , Range 18E , Section 14

UTM 4490403.305 N, 595962.705 E

DISCUSSION

Trend Study No. 9-16 (12-5)

The Mosby Mountain study samples a sagebrush-grass type with scattered serviceberry and bitterbrush at an elevation of about 7,900 feet. Slope varies from 8-10% and a southerly aspect. The relatively high elevation may limit or prohibit big game use during severe winters. The study site is in close proximity to the Mosby Mountain big game exclosure and pellet group transect. Soon after the reading of this study in August 1988, the area was burned by a wildfire. During the 1995 reading, it was noted that belts 1 and 5 from the original baseline were not burned while belts 2, 3, and 4 were burned. As a result, most of the shrubs on the burned belts were eliminated. Past and present cattle use is heavy with cattle still on the site during the 1995 and 2000 readings. Pellet group transect data taken along the baseline in 2000 estimate light use by big game and slightly higher use by livestock. Deer use was estimated at 9 days use/acre (22 ddu/ha) and elk use was estimated at 20 days use/acre (50 edu/ha). Livestock use was estimated at 36 days use/acre (89 cdu/ha).

Soil on the site is relatively shallow and rocky with deeper soil further down slope. Effective rooting depth is estimated at just over 9 inches. Soils are loam to sandy clay loam in texture and are fairly high in organic matter (4.5%). Soil reactivity is slightly acidic (pH of 6.4). On nearby steeper slopes, noticeable soil movement was reported in 1988. Bare ground is moderate at about 21% in 2000, but abundant herbaceous vegetation and litter cover keep erosion at minimal levels.

Browse on the site are scattered and accounted for an estimated 8% average cover in 1995, increasing to 11% by 2000. The most abundant shrub in both cover and density is mountain big sagebrush. Density has varied between readings for several reasons, including the burn following the 1988 reading, and the much larger sample size utilized for the northeast region beginning in 1995. The 1988 burn was spotty over the study site with many sagebrush surviving. Mountain big sagebrush density is currently (‘00) estimated at 1,900 plants/acre with light to moderate use and mostly good vigor. Percent decadency increased from 8% in 1995 to 14% in 2000. Recruitment is good at 12% (220 plants/acre). It appears to be adequate to replace the decadent plants classified as dying in the population (80 plants/acre).

Secondary browse species consist of serviceberry and bitterbrush. Total density of serviceberry declined from 1,265 plants/acre in 1988 to 400 by 2000, while bitterbrush declined from about 600 plants/acre in 1988 to 300 in 2000. Changes in density could be due to the burn or the increased sample size used beginning in 1995, or possibly both. Serviceberry shows moderate to heavy use in all readings. Currently (‘00), 50% of the serviceberry display moderate use, with an additional 25% showing heavy use. No decadent plants were sampled in 2000, and vigor is good. A positive trend for serviceberry is the high level of recruitment in 2000 at 20%. Bitterbrush display moderate use on 60% of the population and heavy use on 27% of the population in 2000. Vigor is also good throughout the bitterbrush population with no decadent plants sampled in 2000. Bitterbrush on the site have a prostrate growth form and currently average 1 foot in height with a 3 ½ foot crown. When the site was read in 2000, it was noted that some shrubs of different species have been heavily browsed to the ground. As deer and elk pellet groups are not abundant, this is probably due to cattle use especially during the extended drought during the past decade.

The herbaceous understory is quite diverse and accounts for 75% of the total vegetative cover on the site. Grasses provided about 17% cover in 1995, half of which came from thickspike wheatgrass. In 2000, cover from grasses increased to almost 23%, with thickspike again providing half of this. Nested frequency of thickspike significantly decreased in 2000. Mutton bluegrass is also abundant providing nearly 5% average cover in 2000 and significantly increasing in nested frequency. Other perennial species include: Kentucky bluegrass, Sandberg bluegrass, needle-and-thread, squirreltail and Letterman needlegrass. Some grasses had been heavily utilized when the site was read in 2000. As a group, perennial grasses slightly decreased in sum of

nested frequency in 2000. Cheatgrass, which was moderately abundant in 1995, was not sampled in 2000 due to drought. Forbs are diverse and provide over 11% average cover in 2000. Although average forb cover increased in 2000, sum of nested frequency for perennial species decreased. Annual forbs were abundant in 1995 with the wet spring of that year, but nearly disappeared from the site in 2000 with drought. Many of the forb species are weedy increasers. The most common perennial species include: hooker balsamroot, trailing fleabane, pussytoes and aster.

1982 APPARENT TREND ASSESSMENT

Within the immediate area of the study site, soil trend appears stable to declining. On nearby steeper sites, the trend would be more downward. Vegetative condition is below optimum. Browse density, especially of the more preferred species, is substandard. Animal use is almost certainly one of the more causative factors. Many increaser species of all vegetative classes are present and may be expanding. Range trend appears to be slightly downward.

1988 TREND ASSESSMENT

The soil trend appears fairly stable. Percent bare ground increased slightly, while percent litter cover declined. However, basal vegetative cover increased from 7% to 13%. Mountain big sagebrush has increased in density due to a significant increase in the number of seedlings and young plants. Percent decadence increased from 5% to 28%, but vigor is generally good. The majority of the sagebrush is lightly hedged so this increase in decadency is more a reflection of the age of the stand in conjunction with drought. The more preferred serviceberry and bitterbrush show improved recruitment, but serviceberry displays heavy use on 100% of the mature plants with an increased rate of decadency. Overall trend for browse is stable. Trend for the herbaceous understory is significantly improved. Quadrat frequency of grasses and forbs nearly doubled since 1982. Quadrat frequency of thickspike wheatgrass and mutton grass increased from 52% and 53% respectively to 92% and 95%.

TREND ASSESSMENT
soil - stable (3)
browse - stable for key species with improved recruitment (3)
herbaceous understory - up (5)

1995 TREND ASSESSMENT

Trend for soil is slightly up with a good stand of rhizomatous grasses to help prevent erosion. The fire that burned the site in 1988 reduced the density of the shrubs, but did not eliminate them. The remaining stand of mountain big sagebrush and serviceberry, though smaller, are healthier with less decadence. Use is still heavy yet vigor is good. Trend is stable. Trend for the herbaceous understory is slightly down. Sum nested frequency of perennial grasses and perennial forbs has declined since 1988.

TREND ASSESSMENT
soil - slightly up (4)
browse - stable for key species (3)
herbaceous understory - slightly down for perennial species (2)

2000 TREND ASSESSMENT

Trend for soil is slightly up. Erosion remains minimal as herbaceous vegetation is abundant. The ratio of protective ground cover (vegetation, litter, and cryptogams) to bare soil increased from 2.7:1 to 3.3:1 in 2000.

This ratio indicates high nested frequency values for vegetation and litter and well disbursed protective ground cover over the site. Trend for browse is stable. Mountain big sagebrush has good recruitment at 12%, mostly good vigor and moderate decadence at 14%. Use is light to moderate. Serviceberry have high recruitment at 20%, no decadency and good vigor. Bitterbrush displays good vigor and no decadence. Use is moderate to heavy on both serviceberry and bitterbrush. However, these species can tolerate higher levels of use and don't appear to be negatively affected at the present time. Trend for the herbaceous understory is slightly down as sum of nested frequency for both perennial grasses and forbs slightly decreased in 2000.

TREND ASSESSMENT
soil - slightly up (4)
browse - stable (3)
herbaceous understory - slightly down (2)

HERBACEOUS TRENDS --
Herd unit 09 , Study no: 16

Type	Species	Nested Frequency			Quadrat Frequency				Average Cover %	
		'88	'95	'00	'82	'88	'95	'00	'95	'00
G	Agropyron dasystachyum	$_{b}$260	$_{b}$266	$_{a}$211	52	92	85	68	8.28	11.19
G	Bromus tectorum (a)	-	$_{b}$115	$_{a}$-	-	-	37	-	1.28	-
G	Poa fendleriana	$_{c}$277	$_{a}$149	$_{b}$200	53	95	59	66	2.87	4.78
G	Poa pratensis	$_{a}$4	$_{c}$105	$_{b}$42	-	2	39	15	1.05	1.29
G	Poa secunda	$_{b}$182	$_{a}$33	$_{a}$30	53	72	13	14	.31	.58
G	Sitanion hystrix	$_{a}$16	$_{a}$19	$_{b}$58	6	10	9	23	.09	1.87
G	Stipa comata	$_{a}$21	$_{a}$63	$_{b}$70	2	12	27	27	1.77	2.75
G	Stipa lettermani	$_{b}$53	$_{b}$58	$_{a}$7	20	22	24	3	.84	.30
Total for Annual Grasses		0	115	0	0	0	37	0	1.28	0
Total for Perennial Grasses		813	693	618	186	305	256	216	15.22	22.78
Total for Grasses		813	808	618	186	305	293	216	16.51	22.78
F	Agoseris glauca	-	3	-	4	-	1	-	.00	-
F	Allium spp.	$_{a}$3	$_{b}$60	$_{a}$-	5	2	30	-	.15	-
F	Antennaria rosea	$_{b}$61	$_{a}$31	$_{ab}$56	10	26	12	22	.93	3.15
F	Arabis spp.	$_{c}$60	$_{b}$12	$_{a}$-	5	32	6	-	.03	-
F	Artemisia ludoviciana	-	-	-	-	-	-	-	-	.00
F	Astragalus purshii	$_{c}$28	$_{b}$7	$_{a}$-	6	9	3	-	.06	-
F	Aster spp.	68	65	75	34	26	29	30	.95	1.70
F	Astragalus spp.	19	2	3	1	6	1	2	.00	.01
F	Balsamorhiza hookeri	$_{c}$157	$_{b}$104	$_{a}$60	24	69	45	28	1.15	2.28
F	Camelina microcarpa (a)	-	$_{b}$7	$_{a}$-	-	-	4	-	.02	-
F	Calochortus nuttallii	3	-	-	-	1	-	-	-	-
F	Collomia linearis (a)	-	$_{b}$75	$_{a}$-	-	-	33	-	.24	-

Type	Species	Nested Frequency			Quadrat Frequency				Average Cover %	
		'88	'95	'00	'82	'88	'95	'00	'95	'00
F	Comandra pallida	-	-	3	-	-	-	2	-	.15
F	Collinsia parviflora (a)	-	$_{b}$60	$_{a}$9	-	-	25	4	.27	.02
F	Crepis acuminata	$_{a}$-	$_{b}$18	$_{a}$-	-	-	9	-	.07	-
F	Cryptantha spp.	-	1	-	-	-	1	-	.00	-
F	Cymopterus spp.	-	3	3	-	-	1	1	.00	.00
F	Descurainia pinnata (a)	$_{b}$23	$_{b}$27	$_{a}$2	-	11	15	1	.10	.00
F	Eriogonum alatum	$_{b}$122	$_{a}$3	$_{a}$11	4	47	3	4	.01	.24
F	Erigeron flagellaris	$_{a}$19	$_{a}$30	$_{b}$92	11	9	13	38	.09	2.88
F	Eriogonum umbellatum	$_{b}$6	$_{ab}$1	$_{a}$-	4	4	1	-	.03	-
F	Heterotheca villosa	$_{a}$-	$_{b}$13	$_{b}$12	-	-	6	7	.20	.16
F	Lappula occidentalis (a)	-	1	-	-	-	1	-	.00	-
F	Lactuca serriola	$_{a}$-	$_{b}$5	$_{a}$-	-	-	3	-	.01	-
F	Lepidium densiflorum (a)	-	$_{b}$92	$_{a}$-	-	-	45	-	.25	-
F	Lithospermum ruderale	8	15	7	-	4	8	5	.41	.08
F	Lupinus argenteus	$_{ab}$17	$_{a}$3	$_{b}$23	8	9	2	11	.06	.35
F	Microsteris gracilis (a)	-	4	-	-	-	2	-	.01	-
F	Penstemon spp.	15	8	9	3	10	3	5	.01	.10
F	Phlox longifolia	$_{b}$24	$_{ab}$16	$_{a}$2	-	11	7	1	.03	.00
F	Polygonum douglasii (a)	-	$_{b}$177	$_{a}$4	15	-	65	1	1.08	.00
F	Potentilla gracilis	-	1	2	-	-	1	1	.00	.15
F	Sedum lanceolatum	5	1	-	1	2	1	-	.00	-
F	Senecio multilobatus	-	-	1	-	-	-	1	-	.00
F	Sphaeralcea coccinea	$_{ab}$13	$_{b}$19	$_{a}$3	8	6	8	2	.11	.06
F	Taraxacum officinale	$_{a}$-	$_{c}$28	$_{b}$6	-	-	13	3	.16	.06
F	Tragopogon dubius	10	6	5	-	8	3	3	.04	.04
Total for Annual Forbs		23	443	15	15	11	190	6	1.98	0.02
Total for Perennial Forbs		638	455	373	128	281	210	166	4.59	11.47
Total for Forbs		661	898	388	143	292	400	172	6.57	11.50

Values with different subscript letters are significantly different at % = 0.10

BROWSE TRENDS --
Herd unit 09 , Study no: 16

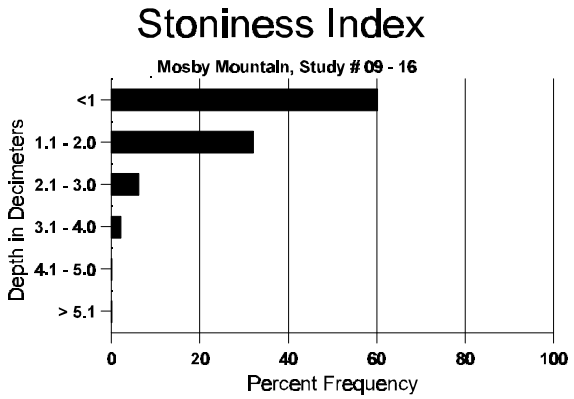
Type	Species	Strip Frequency '95	Strip Frequency '00	Average Cover % '95	Average Cover % '00
B	Amelanchier alnifolia	22	19	1.81	2.75
B	Artemisia tridentata vaseyana	41	43	3.40	4.54
B	Ceanothus fendleri	7	7	1.92	2.12
B	Chrysothamnus nauseosus graveolens	0	1	-	-
B	Chrysothamnus viscidiflorus lanceolatus	4	3	.18	.03
B	Eriogonum heracleoides	12	6	.56	.30
B	Gutierrezia sarothrae	3	7	-	.15
B	Opuntia spp.	6	5	-	.03
B	Purshia tridentata	10	12	.03	1.00
B	Symphoricarpos oreophilus	6	6	.06	.15
Total for Browse		111	109	7.98	11.09

BASIC COVER --
Herd unit 09 , Study no: 16

Cover Type	Nested Frequency '95	Nested Frequency '00	Average Cover % '82	Average Cover % '88	Average Cover % '95	Average Cover % '00
Vegetation	369	365	7.00	13.00	39.93	49.49
Rock	193	102	.25	2.50	6.85	7.48
Pavement	94	60	.50	1.00	.23	.60
Litter	395	392	72.00	56.50	49.51	50.47
Cryptogams	2	23	.75	5.25	.00	.46
Bare Ground	282	234	19.50	21.75	14.68	20.87

SOIL ANALYSIS DATA --
Herd Unit 09, Study # 16, Study Name: Mosby Mountain

Effective rooting depth (inches)	Temp °F (depth)	pH	%sand	%silt	%clay	%0M	PPM P	PPM K	dS/m
9.29	59.2 (10.00)	6.4	50.9	28.8	20.3	4.5	27.8	316.8	1.4



PELLET GROUP FREQUENCY --
Herd unit 09 , Study no: 16

Type	Quadrat Frequency		Pellet Transect	
	'95	'00	Pellet Groups per Acre '00	Days Use per Acre (ha) '00
Rabbit	3	-	174	N/A
Horse	1	-	-	-
Elk	21	13	261	20 (50)
Deer	16	12	122	9 (22)
Cattle	24	7	426	36 (88)

BROWSE CHARACTERISTICS --
Herd unit 09 , Study no: 16

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Amelanchier alnifolia																		
S	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	88	2	-	-	-	-	-	-	-	-	2	-	-	-	133			2
	95	2	-	-	-	-	-	-	-	-	2	-	-	-	40			2
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
Y	82	-	4	-	-	-	-	-	-	-	1	3	-	-	266			4
	88	8	1	-	-	-	-	1	-	-	9	-	1	-	666			10
	95	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
	00	1	1	-	1	-	-	1	-	-	4	-	-	-	80			4
M	82	-	2	10	-	-	-	-	-	-	-	11	1	-	800	23	25	12
	88	-	-	5	-	-	-	-	-	-	5	-	-	-	333	35	37	5
	95	2	8	9	2	-	-	-	-	-	21	-	-	-	420	23	34	21
	00	2	6	2	-	3	3	-	-	-	16	-	-	-	320	31	43	16
D	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	88	-	3	1	-	-	-	-	-	-	4	-	-	-	266			4
	95	-	1	-	-	-	-	-	-	-	1	-	-	-	20			1
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
X	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	80			4
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'82	38%	63%	06%	+16%
'88	21%	32%	05%	-64%
'95	39%	39%	00%	-13%
'00	50%	25%	00%	

Total Plants/Acre (excluding Dead & Seedlings)			Dec:	
	'82	1066		0%
	'88	1265		21%
	'95	460		4%
	'00	400		0%

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Artemisia tridentata vaseyana																		
S	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	88	2	-	-	-	-	-	-	-	-	2	-	-	-	133			2
	95	3	-	-	-	-	-	-	-	-	3	-	-	-	60			3
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
Y	82	6	-	-	-	-	-	-	-	-	6	-	-	-	400			6
	88	10	-	-	-	-	-	-	-	-	10	-	-	-	666			10
	95	4	2	-	-	-	-	-	-	-	6	-	-	-	120			6
	00	11	-	-	-	-	-	-	-	-	11	-	-	-	220			11
M	82	34	2	-	-	-	-	-	-	-	32	4	-	-	2400	16	21	36
	88	19	9	-	1	-	-	-	-	-	29	-	-	-	1933	25	29	29
	95	11	41	16	-	-	-	-	-	-	68	-	-	-	1360	14	21	68
	00	50	21	-	-	-	-	-	-	-	71	-	-	-	1420	13	23	71
D	82	1	1	-	-	-	-	-	-	-	-	2	-	-	133			2
	88	13	1	-	1	-	-	-	-	-	14	-	1	-	1000			15
	95	-	6	-	-	-	-	-	-	-	6	-	-	-	120			6
	00	7	6	-	-	-	-	-	-	-	9	-	-	4	260			13
X	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	220			11
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	120			6

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'82	07%	00%	00%	+19%
'88	19%	00%	02%	-56%
'95	61%	20%	00%	+16%
'00	28%	00%	04%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'82	2933	Dec:	5%
	'88	3599		28%
	'95	1600		8%
	'00	1900		14%

Ceanothus fendleri																		
M	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	95	13	-	-	-	-	-	-	-	-	13	-	-	-	260	9	54	13
	00	10	-	-	-	-	-	-	-	-	10	-	-	-	200	11	67	10

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'82	00%	00%	00%	
'88	00%	00%	00%	
'95	00%	00%	00%	-23%
'00	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'82	0	Dec:	-
	'88	0		-
	'95	260		-
	'00	200		-

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Chrysothamnus nauseosus graveolens																		
M	82	1	-	-	-	-	-	-	-	-	1	-	-	-	66	19	15	1
	88	-	-	-	1	-	-	-	-	-	-	-	1	-	66	29	9	1
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0	13	11	0
	00	1	-	-	-	-	-	-	-	-	1	-	-	-	20	15	19	1

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'82	00%	00%	00%	+ 0%
'88	00%	00%	100%	
'95	00%	00%	00%	
'00	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
'82	66	Dec:		-
'88	66			-
'95	0			-
'00	20			-

Chrysothamnus viscidiflorus lanceolatus																		
Y	82	2	-	-	-	-	-	-	-	-	2	-	-	-	133			2
	88	4	-	-	-	-	-	-	-	-	1	-	3	-	266			4
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
M	82	4	-	-	-	-	-	-	-	-	4	-	-	-	266	10	14	4
	88	6	-	-	-	-	-	-	-	-	3	-	3	-	400	7	9	6
	95	3	-	1	-	-	-	-	-	-	4	-	-	-	80	8	13	4
	00	3	-	-	-	-	-	-	-	-	3	-	-	-	60	6	10	3

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'82	00%	00%	00%	+40%
'88	00%	00%	60%	-88%
'95	00%	25%	00%	-25%
'00	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)			
'82	399	Dec:	-
'88	666		-
'95	80		-
'00	60		-

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Eriogonum heracleoides																		
Y	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	95	9	-	-	-	-	-	-	-	-	9	-	-	-	180			9
	00	4	-	-	-	-	-	-	-	-	4	-	-	-	80			4
M	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	95	18	-	-	-	-	-	-	-	-	18	-	-	-	360	5	16	18
	00	7	-	-	-	-	-	-	-	-	7	-	-	-	140	4	11	7

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'82	00%	00%	00%	
'88	00%	00%	00%	
'95	00%	00%	00%	-59%
'00	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'82	0	Dec:	-
	'88	0		-
	'95	540		-
	'00	220		-

Eriogonum microthecum																		
Y	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	88	1	-	-	-	-	-	-	-	-	1	-	-	-	66			1
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
M	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	88	2	1	-	-	-	-	-	-	-	3	-	-	-	200	4	7	3
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'82	00%	00%	00%	
'88	25%	00%	00%	
'95	00%	00%	00%	
'00	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'82	0	Dec:	-
	'88	266		-
	'95	0		-
	'00	0		-

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Gutierrezia sarothrae																		
S	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	00	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
Y	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	00	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
M	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	95	6	-	-	-	-	-	-	-	-	6	-	-	-	120	9	12	6
	00	15	-	-	-	-	-	-	-	-	15	-	-	-	300	7	8	15

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'82	00%	00%	00%	
'88	00%	00%	00%	
'95	00%	00%	00%	+63%
'00	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'82	0	Dec:	-
	'88	0		-
	'95	120		-
	'00	320		-

Opuntia spp.																		
S	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	88	1	-	-	-	-	-	-	-	-	-	-	1	-	66			1
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
Y	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	88	4	-	-	-	-	-	-	-	-	2	-	2	-	266			4
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	00	2	-	-	-	-	-	-	-	-	2	-	-	-	40			2
M	82	2	-	-	-	-	-	-	-	-	2	-	-	-	133	1	12	2
	88	6	-	-	-	-	-	-	-	-	6	-	-	-	400	4	9	6
	95	7	-	-	-	-	-	-	-	-	5	-	2	-	140	3	14	7
	00	2	-	-	-	-	-	-	-	-	2	-	-	-	40	2	12	2
D	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	00	6	-	-	-	-	-	-	-	-	5	-	-	1	120			6

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'82	00%	00%	00%	+80%
'88	00%	00%	20%	-79%
'95	00%	00%	29%	+30%
'00	00%	00%	10%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'82	133	Dec:	0%
	'88	666		0%
	'95	140		0%
	'00	200		60%

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Purshia tridentata																		
S	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	88	1	-	-	-	-	-	-	-	-	1	-	-	-	66			1
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
Y	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	88	3	1	-	-	-	-	-	-	-	4	-	-	-	266			4
	95	3	-	-	-	-	-	-	-	-	3	-	-	-	60			3
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
M	82	-	3	2	-	-	-	-	-	-	5	-	-	-	333	7	19	5
	88	-	2	3	-	-	-	-	-	-	5	-	-	-	333	10	19	5
	95	1	6	2	-	-	-	-	-	-	9	-	-	-	180	10	32	9
	00	1	6	3	1	3	1	-	-	-	15	-	-	-	300	12	42	15

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'82	60%	40%	00%	+44%
'88	33%	33%	00%	-60%
'95	50%	17%	00%	+20%
'00	60%	27%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'82	333	Dec:	-
	'88	599		-
	'95	240		-
	'00	300		-

Sambucus cerulea																		
M	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0	47	69	0

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'82	00%	00%	00%	
'88	00%	00%	00%	
'95	00%	00%	00%	
'00	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'82	0	Dec:	-
	'88	0		-
	'95	0		-
	'00	0		-

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Symphoricarpos oreophilus																		
Y	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	95	4	-	-	-	-	-	-	-	-	4	-	-	-	80			4
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
M	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	88	-	-	-	1	-	-	-	-	-	1	-	-	-	66	16	14	1
	95	2	1	3	-	-	-	-	-	-	6	-	-	-	120	11	19	6
	00	5	-	-	1	-	-	1	-	-	7	-	-	-	140	15	21	7

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'82	00%	00%	00%	
'88	00%	00%	00%	+67%
'95	10%	30%	00%	-30%
'00	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'82	0	Dec:	-
	'88	66		-
	'95	200		-
	'00	140		-